PROGRAMMING & OPERATING INSTRUCTIONS FOR SCHILLING SM-110 portable and SM-130 stand alone MICRODOT MARKING SYSTEMS

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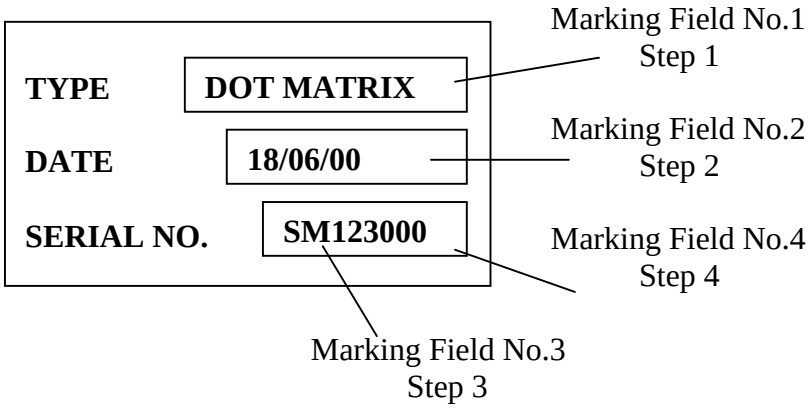
Explanatory Programming Note:

While the following provides a step by step programming instruction – there is a general overall strategy which applies to programming **any** marking text.

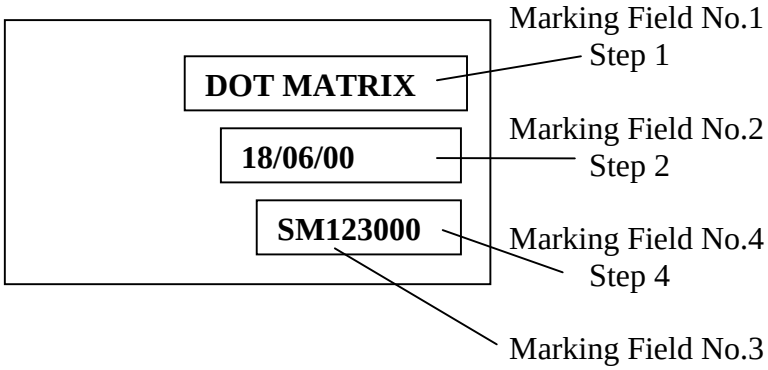


For example in the above illustration there are 4 steps – Each step comprises 7 menus each of which must be addressed, (either enter new values or accept the values displayed.

Marking Operating Instructions For The SM 110 Dot Matrix System Utilising an Illustrative Example.

The following describes the step by step procedure for **programming and operating** the **SM-110 and SM-130** (models without RS232 port) **Dot Matrix Marking Systems**

1.0 To illustrate the methods employed the overmarking of an aluminium data plate is used. (Example only)



1.1 Marking Text Parameters

FIELD 1 = **"DOT MATRIX"**
FIELD 2 = Current date using **DDMMYY** format.
FIELD 3 = **"SM123000"**
SM = Fixed prefix
Number= sequential serial no. increment + 1

1.2 Character Size Height (Size H)

FIELD 1 = 4MM
FIELD 2 = 2MM
FIELD 3 = 3MM

1.3 Character **Width (W)** = **90%** of standard width (100%)

1.4 Character **Style, (FONT)** = **DIN 1451**)

1.5 Other Parameters

1.51 D = **Space** between characters **= 60%** of the standard space (100%)

1.52 S = **Slant** angle of characters required = **90°.**

1.53 DIR = **Direction** of a line of text relative to horizontal = **0°**.

EXPLANATIONS:

For programming the Dot Matrix Marking Machine the text in the marking fields must be classified …

Text **- fixed**
or
Text **- variable**

Text fixed can be **letters** or **numerals** or a combination of both.

Text variable can be a **date** or a **time** or a **sequential number,** but can only be numerals. Letters cannot be included in a variable field.

Hence in this example...

DOT MATRIX= Text fixed

DDMMYY = Text variable

SM = Text fixed

Sequential Number = Text variable

2.0 Switching on.

With the machine **off** but connected to a 240v 50hz **electric** supply and compressed **air** supply.

- Switch **power supply** unit to on
- Press **red switch** on the **marking head unit** to the on position

The following **menu** will be displayed….

S.R. No 00D0276	RELEASE A 1.14	P33
NNET NR. 01	CONFIG. 1008B1F6000	

Ignore values shown

- Press the ENTER **key**, the following is displayed.

PASSWORD

- Type in **"MARC"**
- Press ENTER key.

The following **menu** will be displayed….

DOT_ DIST = 0.2	PWM = 15	P
MEM NO. = 0	TIME =	

Ignore values shown – these relate only to the last program carried out and are not relevant to programming a new marking cycle.

- Press FN **key**, (repeatedly if necessary), until the following **menu** is displayed

DOT_ DIST = 0.2	PWM = 15	P
	MEMORY PROGRAMMING	

- Press ENTER key and the following **menu** is displayed.

EXPLANATIONS:

Switching on:
The values shown in this **menu** are the specific details, (**serial no.** of the machine and the **release no.** of the software), of your machine.

Password Function:

There are three levels of security.

1st Level - **"MARC"** allows a new marking layout to be programmed and machine operation, ("MARC" may be substituted for another password).

2nd Level -**"JOB"** permits machine operation for existing program only

3rd Level -**"MP456"** permits the same as for level 1 but this cannot be changed.

"MEMORY PROGRAMMING" is the mode required to input a new marking cycle into program memory.

The following menu should be displayed.

STEP No. 0	MODE INSERT	PWM= 15
TEXT ⇨	DATE ⇨	NUMB ⇨

3.0 Step 1

3.1 Text Entry

Programming **step 1** (Step 0 is displayed) now begins.

- The **cursor** should be on the MODE prompt.
- Using the ↑ ↓ arrow **keys** scroll until INSERT is displayed
- Press ENTER key.
  The **cursor** will move on to the TEXT prompt.
- Press ENTER key and the following **menu** is displayed.

TEXT:

- Using ⇧ on the left hand side of the keyboard select **upper case,** and the letter **M** appears on the top left of the display.
- Type in **"DOT MATRIX".**

EXPLANATIONS:

STEP = A discrete part of a marking text. - i.e.

"DOT MATRIX" = Step1
DDMMYY = Step 2
SMxxxx = Step 3
xxx123000 = Step 4

Note: FIELD 3 is made up of two steps

Note: For STEP 1, STEP 0 is displayed.

MODE Options:
INSERT
Or
CLEAR
Or
ERASE
Or
MODIFY

PWM value displayed is simply a reminder of a previously programmed value.

DATE If a continuous update is required - Change is automatic

NUMB Applies only if a sequential number series is required.

- Press ENTER key

  The following **menu** is displayed.

SIZE H = 5.0	W= 100	D = 100	S = 90	DIR = 0
POS X = 3.0	POS Y = 24.0	JJ		

3.2 Step 1 – Entering Text Sizes and Positioning

Refer to **paragraph 1.0** for the marking specification

- Using ← key **only** move the **cursor** to the SIZE H , (**character height**) prompt
- Type in **4.0** for the **character height.**
- Using → key move the **cursor** to W prompt .
- Type in "**90"** for the **percentage character width.**
- Using → key move the **cursor** to D prompt .
- Type in **60** for the **percentage character spacing.**
- Using → key move the **cursor** to S prompt .
- Type in **90** for the **standard slant.**
- Using → key move the **cursor** to DIR prompt.
- Type in **0** for the **marking direction angle.**
- Using → key move the **cursor** to JJ prompt.

EXPLANATIONS:

(From previous menus)

If STEP 0 is displayed no previous values for have been programmed. Hence the only option at the **mode prompt** is INSERT .

However, if STEP 1 or a higher step value is displayed a marking cycle already exists in program memory – to insert new text scroll using the ↑ ↓ keys until CLEAR is displayed.

Press ENTER and then ENTER again to confirm this. Then proceed to insert new text as described.

Caution: Use only the → key between entering values. If ENTER is pressed mistakenly the programming of this step will be automatically completed using values defined in the "DEFAULT PARAMETERS" menu.

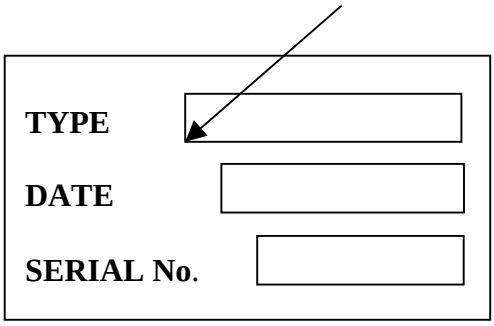
Note: Use of the escape key at any time will abandon the programming of the current step.

- Press ENTER key and the following menu is displayed.

S = 0.1	S= 0.5	S= 1.0	S = 5.0 0
POS X = 3.0		POS Y = 24.0	

Note that the cursor is on the S =0.1 prompt.

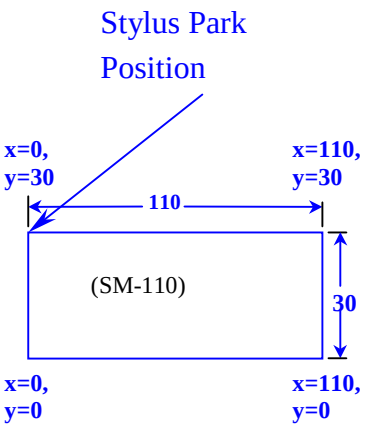
- Now place the **data plate** firmly and symmetrically in the marking **area,** (approx' centre)
- Using → ← ↑ ↓ keys inch the **stylus** from its **parked** position to **FIELD 1** until the stylus is directly above the bottom left hand corner. Note values of POS X and POS Y



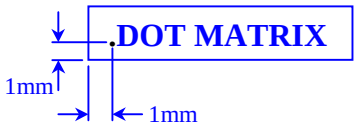
- To establish **final** POS X value use the → key to move the stylus until the POS X value is **increased** by **1mm.**
- To establish **final** POS Y value use the ↑ key to move the stylus until the POS Y value is **increased by 1mm.**
- Press ENTER key.
- The **stylus** will return to its **park** position and the following **menu** is displayed.

EXPLANATIONS:

POS X and POS Y values. These relate to the marking start positions for **FIELD 1, FIELD 2, & FIELD 3** in relation to the bottom **LH** extremity of the 110mm x 30mm marking area (for SM-110) and 130x100mm (for SM-130)



Ideal position of mark within its field.



Using the **JJ function** the **XY movement** of the stylus is constantly **measured and displayed.** To change the step distance, e.g. S=0.5 when inching the stylus use the ⇅ key.

The following menu is displayed

SIZE H = 4.0	W= 90	D = 60	S = 90	DIR = 0
POS X = 3.0	POS Y = 24.0	JJ		

3.3 Step 1. - Stylus parameter settings

- Press → key **only** to display the following menu

NEEDLE: DOTS DIST = 0.2	UPSTROKE TIME = 10
PWM = 15	DIST = 1.0

Values selected:

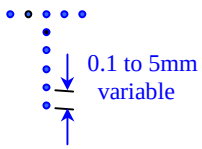
DOTS DISTANCE = 0.2mm
UPSTROKE TIME = 10msec
PWM = 15%
DIST = 1mm

- The **cursor** should be on NEEDLE: DOTS DIST
- 0.2 is shown – since this is the value wanted no change is necessary.
- Using → key move cursor to UPSTROKE TIME
- Type in "**9**".
- Using → key move cursor to PWM prompt.
- 15 Is shown - since this is the value wanted no change is necessary.
- Using → key move cursor to DIST prompt.
- Type in"**2**".

EXPLANATIONS:

NEEDLE: DOTS DIST

Is the distance between the dots produced – i.e. for the letter "T"



UPSTROKE TIME

Variable 1-30msecs.

Effects…

i. Depth of mark
ii. Marking speed
iii.Clarity

PWM %

. **Dwell time** – Duration electrovalve is open.

Effects…

i. Marking depth
ii.Marking speed

DIST (1 – 14mm)

Setting memorandum for distance of stylus from marking area–**stylus height.**

Effects… Marking depth

i.e. Value for a light mark or on soft materials = 1mm,

For a deep mark =14mm

- Press → key until the next **menu** is displayed.

SPEED % =	MOVING 99
FONT = MATRIX 7 x 5	JUST = RIGHT

3.4 Step 1. - Speed, Fonts and Justification

Values selected:

MOVING = 80%

FONT = DIN 1451

JUST = RIGHT

- Press → key to move **cursor** to MOVING prompt.
- Type in "**80**"
- Press → key to move cursor to FONT prompt.
- Using the ↑ ↓ arrow keys scroll until DIN 1451 is displayed.
- Press → key to move cursor to JUST prompt.
- Using the ↑ ↓ arrow keys scroll until RIGHT is displayed.
- Press → key until the next **menu** is displayed.

EXPLANATIONS:

MOVING = **% of max nominal marking speed**

FONT =**Character style** selection from standard options.

JUST = **Justification - -** direction in which characters progress as they are marked. Options are…

LEFT
or
RIGHT
or
CENTRE

i.e. If **RIGHT** is displayed the characters will progress to the right of the start selected point.

The following menu will be displayed.

REPEAT = 1	DX = 0.0	DY = 0.0
MIRROR X = NO	MIRROR Y = NO	DIST = PROP

3.5 Special Effects

Values selected

REPEAT = 1
DX = 0.0
DY = 0.0
MIRROR X = NO
MIRROR Y = NO
DIST = PROP

Since the selected values required above are being displayed on the **menu** no changes are required.

- Press [ENTER] key to confirm all data for **step 1,** and this menu is displayed once more.

STEP No. 1	MODE INSERT	PWM= 15
TEXT ⇨	DATE ⇨ NUMB ⇨	

The programming of **step1** is now **complete**.
Programming **step2** can now proceed, i.e. – FIELD No.2, DATE

Note: Menu will display **step 1** indicating that one step has already been programmed.

EXPLANATIONS:

REPEAT **= overmarking of stylus** – used to **deepen the mark.** This can be repeated up to 9 times.

DX = Repeat mark but offset to give a **shadow effect horizontally.**

DY = Repeat mark but offset to give a **shadow effect vertically.**

MIRROR X = Vertical reflection of the image.

MIRROR Y = Horizontal reflection of the image.

DIST = Spacing between characters when offset is used.

Options are:

STAND = Standard space
Or
PROP = Proportional space

The following menu will be displayed

STEP No. 1 MODE INSERT PWM= 15
TEXT ⇨ DATE ⇨ NUMB ⇨

4.0 Programming Step 2 – Date.

4.1 Step 2 - Date Format entry.

- If INSERT is not being displayed use the ↑ ↓ keys to scroll through the options until it is.
- Press ENTER key.
  The **cursor** will move on to the **text** prompt.
- Press → key to move the cursor to the DATE prompt.
- Press ENTER key.

The following menu will be displayed

DATE: 01/07/00
FORMAT DDMMYY SEPARATOR = /

Format selected:

DATE = DDMMYY

SEPARATOR = /

- With the **cursor** on the FORMAT prompt use the ↑ ↓ to scroll until DDMMYY is displayed.
- Press → key to move the **cursor** to the SEPARATOR prompt.
- Type in the separator required - / .
- Press → key to move to the next menu.

EXPLANATIONS:

Date Formats:

There are several date formats from which to choose.

DDMMYY
MMDDYY
YYMMDD
YYDDMM
DDMMYYYY
MMDDYYYY
YYYYMMDD
YYYYDDMM
Y
YY
YYYY
HHMM(24hr)
HHMM(12hr)
HHMM(12hr am/pm)
(am/pm 12hr)HHMM
DD
MM

Separator Formats:

Several options available

/ or – or + or [SPACE] etc.

The following menu is displayed…

SIZE H = 4.0	W= 90	D = 60	S = 90	DIR = 0
POS X = 3.0	POS Y = 24.0	JJ		

4.2 Step 2 – Date Sizes and Positioning

Note all values are those previously entered when programming **step1.**

Check paragraph 1.0 for the marking specification. All values being displayed on the menu are valid except for the following. SIZE H , POS X and POS Y

- Using ← key **only** move the cursor to the SIZE H prompt
- Type in **2.0**
- Using → key repeatedly move the cursor to the JJ prompt.

Now establish POS X and POS Y values for field **no.2.** Repeat the step by step using the **"JJ"** function as described in **paragraph 3.2.**

- Press ENTER key to confirm final X,Y values.
- The following **menu** is displayed.

SIZE H = 2.0	W= 90	D = 60	S = 90	DIR = 0
POS X = 9.0	POS Y = 14.0	JJ		

- Press the → key and the following **menu** will be displayed.

EXPLANATIONS:

Caution: Use only the → key between entering values. If ENTER is pressed mistakenly the programming of this step will be automatically completed using values defined in the previous step.

Note: Use of the escape key at any time will abandon the programming of the current step.

The following menu is be displayed.

NEEDLE: DOTS DIST = 0.2	UPSTROKE TIME = 10
PWM = 15	DIST = 1.0

EXPLANATIONS:

4.3 Step 2 – Date Stylus Parameters

All the values now displayed in these menus are the ones programmed for **step 1**. Since these are also required for **step 2**, **(DDMMYY)**, no changes are necessary.

- Press key repeatedly until the following **menu** is displayed.

SPEED % =	MOVING 80
FONT = DIN 1451	JUST = RIGHT

4.4 Step 2 – Date Speeds, Fonts and Justification

All the values now displayed are the ones programmed for **step 1**. Since these are also required for **step 2**, **(DDMMYY)**, no changes are necessary.

- Press key repeatedly until the following **menu** is displayed.

REPEAT = 1	DX = 0.0	DY = 0.0
MIRROR X = NO	MIRROR Y = NO	DIST = PROP

4.5 Step 2 – Date Special Effects

All the values now displayed in are the ones programmed for **step 1**. Since these are also required for **step 2**, **(DDMMYY)**, no changes are necessary as no special effects are required.

- Press [ENTER] key to confirm all data for **step 2**, and the following **menu** is displayed.

The following menu is being displayed.

STEP No. 2	MODE INSERT	PWM= 15
TEXT	DATE ⇨ NUMB ⇨	

Programming step 2 is now **complete. Step 3 (SM)** can now be programmed.

5.0 Programming Step 3, Serial Number Prefix.

5.1 Step 3, Format Entry

- If INSERT is not being displayed use the ▲ ▼ keys to scroll through the options until it is.
- Press ENTER key.

The **cursor** will move on to the DATE prompt.

- Press ◄ key to move the cursor to the TEXT prompt.
- Press ENTER key.

The following menu will be displayed

TEXT:

Format selected:

TEXT = SMxxxxxx

- Type in "**SM**".
- Press ENTER key.

EXPLANATIONS:

Note: Menu will display **step 2** indicating that two steps have already been programmed.

The **serial no.** consists of a **fixed text portion, (SM)** and a **sequential number which starts at 12300**0 and finishes at 123100. These need to be considered separately. The **fixed text portion** shall be considered first.

The following **menu** is displayed…

```
SIZE H  = 4.0   W= 90      D = 60    S = 90      DIR = 0
POS X =  3.0            POS Y =  24.0          JJ
```

5.2 Step 3 – Sizes and Positioning

Refer to **paragraph 1.0** for the marking specification

Referring to the marking specification all values being displayed on the menu are the same except for the following.. SIZE H , POS and POS Y

- Using ← key **only** move the **cursor** to the SIZE H prompt
- Type in **3.0**
- Using → key repeatedly move the **cursor** to the JJ prompt.

Establish POS X and POS Y values for field no.3 using the JJ function as described in **paragraph 3.2.**

- Press ENTER key to confirm final **X,Y** values.
- The following **menu** is displayed.

```
SIZE H  = 3.0   W= 90      D = 60    S = 90      DIR = 0
POS X =  9.0            POS Y =  14.0          JJ
```

- Press the → key and the following **menu** will be displayed.

EXPLANATIONS:

Note: all values are those previously entered when programming **step2.**

Caution: Use only the → key between entering values. If ENTER is pressed mistakenly the programming of this step will be automatically completed using values defined in the previous step.

Note: Use of the escape key at any time will abandon the programming of the current step.

The following **menu** is displayed.

EXPLANATIONS:

NEEDLE: DOTS DIST = 0.2	UPSTROKE TIME = 10
PWM = 15	DIST = 1.0

5.3 Step 3 – Prefix Stylus Parameters

All the values now displayed are the same as the ones programmed for **step 2**. Since these are also required for **step 3**, **(SM),** no changes are necessary.

- Press key repeatedly until the following **menu** is displayed.

SPEED % =	MOVING 80
FONT = DIN 1451	JUST = RIGHT

5.3 Step 3 – Speed, Character Style and Justification

All the values now displayed are the same as the ones programmed for **step 2.** Since these are also required for **step 3**, **(SM)**, no changes are necessary.

- Press key repeatedly until the following menu is displayed.

REPEAT = 1	DX = 0.0	DY = 0.0
MIRROR X = NO	MIRROR Y = NO	DIST = PROP

5.4 Step 3 – Special Effects

All the values now displayed are the same as the ones programmed for **step 2.** Since these are also valid for **step 3.** no changes are necessary as no special effects are required.

- Press [ENTER] key to confirm all data for **step 3**, and the following menu is displayed.

The following menu is displayed

STEP No. 3	MODE INSERT	PWM= 15
TEXT	DATE ⇨	NUMB ⇨

Programming step 3 is now **complete**. **Step 4**, **(123000 – the sequential number)**, can now be programmed.

Note: Menu will display **step 3** indicating that three steps have already been programmed.

6.0 Programming Step 4 – Sequential Number

6.1 Step 4 – Format Entry

- If INSERT is not being displayed use the ▲ ▼ keys to scroll through the options until it is.
- Press ENTER key.
  The cursor will move on to the TEXT prompt.
- Press → key to move the cursor to the NUMB prompt.
- Press ENTER key.

The following menu will be displayed

COUNTER 0000	DIR = AHEAD
S=0000000 E=9999999	CHAR = 0 FIELD LEN =4

Format selected:

COUNTER = N/A (Not modifiable)
DIR = AHEAD
S = 123000
E = 123100
CHAR = 0
FIELD LEN = 6

EXPLANATIONS:

DIR = Direction in which to count.

i.e. **AHEAD** = Up
BACK = Down

S = Counter start value or start of sequential no.

E = Counter end value or end of sequential no.

CHAR = Character to be inserted in unused spaces, (**blank**, "**0**" or "**-**")

FIELD LEN = **number of digits** in the sequential number

As before the following menu is displayed

COUNTER	0000		DIR = AHEAD
S=000000	E=999999	CHAR = 0	FIELD LEN =4

Ensure the cursor is on the DIR prompt.

- If not use the → ← keys until it is.
- Using ↑ ↓ scroll until AHEAD is displayed.
- Use → to move the cursor to the S prompt.
- Type in"**123000**"
- Use → to move the cursor to the E prompt.
- Type in "**123100**".
- Use → to move the cursor to the CHAR prompt.
- Type in **"0"**.
- Use → to move the cursor to the FIELD LEN prompt.
- Using ↑ ↓ scroll until **"6"** is displayed.
- Press ENTER and the following menu will be displayed.

SIZE H = 3.0	W= 90	D = 60	S = 90	DIR = 0	
POS X = 3.0	POS Y = 24.0		JJ		

EXPLANATIONS:

Note: In this example it is proposed that **100 identification plates** are to be marked and that the number shall **increment by +1** from **123000** to **123100.**

As before the following menu is displayed…

SIZE H = 3.0	W= 90	D = 60	S = 90	DIR = 0
POS X = 3.0	POS Y = 24.0	JJ		

6.2 Step 4 – Sequential number size and positioning

Referring to the marking specification in paragraph 1. all values being displayed on the menu are valid except for , POS X and POS Y which will be placed using the **"AUTO"** function.

- Position the cursor on the POS X prompt.
- Press ↓ to select AUTO .
- Press → key repeatedly until the following menu is displayed.

NEEDLE: DOTS DIST = 0.2	UPSTROKE TIME = 10
PWM = 15	DIST = 1.0

6.3 Step 4 – Sequential Number Stylus Parameters

All the values now displayed are the same as the ones programmed for **step 3.** Since these are also required for **step 4, (Sequential no.)**, no changes are necessary.

- Press → key repeatedly until the following **menu** is displayed.

EXPLANATIONS:

Note: all values are those previously entered when programming **step 3.**

———— ◦ ————

"AUTO" explained: Since the **sequential part** of the serial no. is on the **same line as prefix "SM"** and follows on without spacing there is no need to redefine **"POS X"** and **"POS Y"** values.

A feature exists called **"AUTO"** which **automatically** places a text **immediately after** the previous one

———— ◦ ————

Caution: Use only the → key between entering values. If ENTER is pressed mistakenly the programming of this step will be **automatically completed** using values defined in the previous step.

Note: Use of the **escape key** at any time **will abandon** the programming of the current step.

The following menu is displayed

EXPLANATIONS:

SPEED % =	MOVING 80
FONT = DIN 1451	JUST = RIGHT

6.4 Step 4 – Speed, Character Style and Justification.

All the values now displayed are the same as the ones programmed for **step 3**. Since these are also required for **step 4, (Sequential no.),** no changes are necessary.

- Press key repeatedly until the following **menu** is displayed.

REPEAT = 1	DX = 0.0	DY = 0.0
MIRROR X = NO	MIRROR Y = NO	DIST = PROP

6.5 Step 4 – Sequential Number Special Effects

All the values now displayed are the same as the ones programmed for **step 3.** Since these are also valid for **step 4.** no changes are necessary as no special effects are required.

- Press [ENTER] key to confirm all data for **step 4**, and the following **menu** is displayed.

STEP No. 4	MODE INSERT		PWM= 15
TEXT	DATE ⇨	NUMB ⇨	

Programming step 4 is now complete.

The machine is now ready to mark the identification plate.

(Cont'd)

7.0 Typical Machine Cycle

7.1 Component Setting

- Place the component under the stylus in the same position as before.

- Physically **check the stylus height** above the component and check that it is the same as the value entered under DIST in the **"Stylus Parameter Menus", (i.e. 2.0mm)**. After any adjustment check that the marking unit is firmly secured.

7.2 Dummy - Test Marking Run

A facility exists to check the stylus movements **programmed** without marking the component**.**

- Press the ESC key to display the following menu.

DOT_ DIST = 0.2	PWM = 15	P
MEM NO. = 0	TIME =	

- Press the ALT key once. This will **turn off** the air supply to the stylus and the letter P shown on the right hand side of the display will become, p (lower case), confirming that the air is turned off.

- **Press the "START" button** and the stylus will proceed to **simulate the marking cycle** by following the path programmed but **without marking the component.**

EXPLANATIONS:

7.3) Component Marking

Having ensured that the stylus travels correctly around the marking area the component is now ready to be marked.

- Press the ALT key once more to turn on the air supply. The letter P will be displayed once more.

- Making sure that the component is firmly in place, press the **"START"** button to activate the marking cycle.

Once the marking cycle is completed and the stylus has returned to its home position the following menu will be displayed.

DOT_ DIST = 0.2	PWM = 15	P
MEM NO. = 0	TIME = 11.2 s	

8.0 Saving and loading a marking cycle in file memory.

- Press FN **key**, (repeatedly if necessary), until the following **menu** is displayed

DOT_ DIST = 0.2	PWM = 15	P
MEMORY MANAGEMENT		

- Press ENTER key and the following **menu** is displayed.

EXPLANATIONS:

The TIME prompt on the left of the display shows the **total marking cycle time** to mark the component.

Also shown is the prompt MEM NO. = 0 indicating that the program is still in **program memory, (No. 0),** and has not been saved.

MEMORY MANAGEMENT

This menu is where all the values for the parameters in each menu which are necessary for a complete marking cycle are stored and retained in memory for future use.

The following menu is displayed

MEMORY NO. = 6		NAME =	
SAVE	LOAD	ERASE	MODIFY

The machine will propose to save the current program in the **next available memory**, (e.g. No.6)

- Use the → key to move the cursor on to the NAME prompt.
- Type in **"EXAMPLE 1".**
- Press ENTER key to save the program and the following **menu** is displayed once more.
- Use the → key, if necessary, to move the cursor on to the SAVE prompt.
- Press ENTER key to save the program and the following **menu** is displayed once more.

DOT_ DIST = 0.2	PWM = 15	P
MEM NO. = 6	TIME = 11.2 s	

The marking cycle **"EXAMPLE 1"** is now saved in file memory. It will also remain active in program memory, (Memory No. 0), until it is cleared or until a new marking cycle is programmed.

EXPLANATION:

MEMORY NO. = is the number of the next available memory in which the marking cycle parameters for **"EXAMPLE 1"** can be stored. **Up to 100 marking cycles** can be stored.

NAME allows the user to name the marking cycle program which provides easy identification for future use.

SAVE Allows the user save a program in file memory.

LOAD Allows the user load a program from file memory into program memory, (MEM NO. 0). E.G. Use the ↑ ↓ keys to select the desired program number. Then press the ENTER key. The program chosen will then be loaded into program memory to allow operation or modification.

ERASE allows the user to erase a program stored in file memory.

9.0 Other facilities available using the FN key

Several other useful facilities are available. These are…

9.1 Memory Visualisation

This menu allows a user to view the marking cycles currently stored in file memory.

- Press FN **key**, (repeatedly if necessary), until the following **menu** is displayed

DOT_ DIST = 0.2	PWM = 15	P
MEMORY VISUALISATION		

- Press ENTER key and the following **menu** is displayed – entries are examples only

MEMORY NO. = 6	NAME = EXAMPLE 1
STEP = 4	

- With the cursor on MEMORY NO. = use the ↑ ↓ arrow keys to scroll through the marking cycles stored in file memory.

- Press ESC key to return to the previous menu

9.2 Default Parameters

This menu allows a user to view the factory settings which is used for parameter values not modified in programming.

- Press FN **key**, (repeatedly if necessary), until the following **menu** is displayed

DOT_ DIST = 0.2	PWM = 15	P
DEFAULT PARAMETERS		

- Press ENTER key and the following **menu** is displayed.

EXPLANATIONS:

MEMORY VISUALISATION

This displays on the LCD screen **all previous job cycles** stored in memory. Note that the **names of the marking cycles currently stored** change along with their corresponding memory number. Also note that the **contents of the steps** contained in each job cycle can also be viewed.

DEFAULT PARAMETERS

If, during the **"MEMORY PROGRAMMING"** of specific job cycles certain values have been ignored the values contained within this menu will prevail. These are values pre-programmed at the factory, (factory settings).

These factory settings, however, may be changed to your own values using this menu.

The following menus is displayed…

```
SIZE H  = 4.0   W=  90      D =  60    S =  90      DIR =  0
POS X =  3.0            POS Y =  24.0          JJ
```

- Use the → key to move the cursor on through the prompts, changing if required using the ↑ ↓ keys or typing in actual values.

The following menus are also displayed as before

```
NEEDLE: DOTS DIST = 0.2      UPSTROKE TIME = 10
          PWM = 15                  DIST = 1.0
```

and

```
 SPEED % =                    MOVING  99
FONT = MATRIX 7 x 5                JUST = RIGHT
```

and

```
REPEAT = 1          DX = 0.0       DY = 0.0
MIRROR X = NO     MIRROR Y = NO       DIST = PROP
```

However the following menus are also displayed

```
LANGUAGE =ENGLISH     KEYS = CONT      BUZZER=YES
UNIT OF MEASURE DIST= MM
```

and

```
END MARKING TIME          = 500MSEC
REMOTE START              = VARIATION
```

and

```
HOURS          14:43:59
29/06/2000                        DAYS = THURSDAY
```

Continue to press the → key repeatedly to move through the prompts. Press ESC to exit the **"DEFAULT PARAMETERS"** menu.

EXPLANATIONS

LANGUAGE: ENGLISH

This allows the choice of the following languages.

ITALIAN
ENGLISH
SPANISH
GERMAN
FRENCH

KEYS allows two variations of key operation when they are held down continuously:

CONT = Character repeat
SING = Single character

BUZZER: YES allows the keyboard to confirm a key operation with a bleep. Options are **YES** or **NO**

MEASURE: MM allows the common unit of measure to be **millimetres** or **inches**

REMOTE START

This allows the possibility to operate the machine by a **momentary signal**, (i.e. button push) **or** by a **latched signal,** (i.e The start switch must be constantly pressed). Options are **YES** or **NO**.

9.3 Diagnostic Function

This menu allows a user to test the machine for correct operation of the display, the keyboard, stylus coverage of the marking area and also checks input and output signals.

- Press FN **key**, (repeatedly if necessary), until the following **menu** is displayed

DOT_ DIST = 0.2	PWM = 15	P
DIAGNOSTIC		

- Press ENTER key and the following **menu** is displayed.

DIAGNOSTIC FUNCTION:
DISPLAY KEYBOARD IN/OUT AREA TEST SERIAL

- Use the → key to move the cursor through the prompts. Press the ENTER key to perform any of the tests.
- Press the ESC key at any time to abort a test.
- Press the ESC key again to return to the previous menu.

DOT_ DIST = 0.2	PWM = 15	P
MEM NO. = 0	TIME = 11.2 s	

EXPLANATIONS:

DISPLAY **Tests the display segments** using a programmed sequence of character displays.

KEYBOARD **Checks** that all the **keys** on the keyboard display their appropriate character or perform their correct function.

IN/OUT allows the facility to check the **START** and **STOP** input signals and also the **Cycle and End Cycle outputs** available at the 24v d.d. interface.

AREA TEST **Tests the movement of the stylus** within the marking araea. The stylus travels around the extreme limits of the marking area and back to its home position again.

SERIAL **Checks the RS232 interface,** (If fitted), for correct operation and signal transmission to a computer, (if connected).

10.0 Memory Reset

In the event of a malfunction or to use the marking unit for a completely different application, it can be useful to reset the memory. To do this….

- Switch the marking machine on whilst depressing the SPACE key.
- The marking unit starts to count up to 32 then stops.
- Switch off the marking unit and, after a few seconds, switch it on again.

The marking machine will now be set as it was released from the factory.

EXPLANATIONS:

Note: Resetting the memory will result in the loss of all stored marking cycle data and the default values programmed at the factory will be restored.

11.0 Battery Backup

The main program is permanently stored on an EPROM. The marking cycles and their different parameters are stored on in RAM memory which is protected by a nickel cadmium battery when switched off. The battery has 3 months life if the machine is permanently switched off.

Recommended Settings For Different Marking Requirements

The following is a general guide to the settings required for different marking requirements, when using the Ø 3 mm Light Needle Kit.

	Stylus Height	Stylus Speed	Points Distance	Air* Pressure	Upstroke Time	PWM (Dwell)
Deep Marking	12-14mm	--	0.1 mm	6 – 7 Bar	15 msec	30
Clear Marking	1 mm	50%	0.2 mm	4 – 5 Bar	10 msec	8 - 10
Fast Marking	2 –3 mm	99%	0.4 mm	--	10 msec	--
Fine Marking	1 mm	50%	0.2mm	4 – 5 Bar		8 - 10

***** Air Pressure also dependent upon material being marked.

Notes:

Matrix 7 x 5 will always produce characters 7 dots high by 5 dots wide regardless of the value entered for points distance, (DOTS DISTANCE).

The most pronounced effects upon marking depth are produced by increasing the stylus height, (maximum 12 – 14mm), and increasing air pressure, (maximum 7 Bar).

For very fine marking fine tuning is successfully achieved by altering the stylus height above a test component during the marking cycle.